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## **Dryland Resource Management Technology Adoption in South–Eastern Kenya: Successes, Opportunities and Challenges**

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## **Context**

In spite of their relative aridity, Kenya's arid and semi-arid lands (ASALs), which make about 80% of the landmass, support about a quarter of the country's population. Population increases in the high potential areas have led to an exodus of people to low potential areas, a situation that has put great pressure on the dryland resources, leading to the degradation of these resources.

The Kamba community of south-eastern Kenya drylands have had sustained efforts to adopt natural resource management technologies to improve their livelihoods and alleviate poverty. These drylands receive low and poorly distributed rainfall, a situation that adversely affects crop and livestock production. As the human population continues to increase, so does the severity of the impact of drought and consequent food shortages. Food and livelihood security has thus become a major local and national concern.

Natural resource management (NRM) technologies have been resisted in the past in the drylands due to lack of appropriate mechanisms to ensure ownership by the recipients of the intended technology adopters. Thus this scenario occurs mainly because of the manner in which these technologies are introduced and implemented, which has often been through top-down approaches. To avoid this pitfall, participatory methods were adopted in the introduction of natural resource improvement technologies.

## **Objectives of the project**

The aims of the experience are:

- to test NRM technologies as anti erosive measures in dry agro pastoralist areas
- to test the adoption process of the perennial indigenous grasses revegetation in rangeland using a better involvement and capacity enhancement of the target recipient communities

## **Description of the project**

The approach developed towards successful technologies adoption included three steps:

- Accessing and strengthening local Institutions considering the target land users of local institutions in the form of Self Help Groups (SHGs) as entry point for infusion of development initiative
- Proceed of the technology selection empowering the local communities through workshops, seminars and training by researchers and extension agents, members of the local community empowerment. In this process, a common demonstration would be undertaken and quickly followed by the community own-resource persons (CORPs) in the form of Community Animal Health Care Workers (CAHCW) or Agro-Pastoral Development Agents (APDAs).

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- Testing selected technologies as (i) range improvement through reseeding of perennial grasses, (ii) growing of multipurpose trees (MPTs), (iii) water-harvesting and spreading.

## **Results and Impacts**

Among the technologies tried and adopted, the most successful was range improvement through the rehabilitation of denuded land to improve primary productivity using locally available perennial grasses—*Cenchrus ciliaris*, *Chloris roxburghiana*, *Enteropogon macrostachyus* and *Eragrostis superba*—in turn reducing soil erosion, and improving water recharge and harvesting for domestic use and pasture for livestock production. Except for *E. superba*, which tends to colonise previously cultivated areas, these grasses are found in less-bushed areas and can withstand reasonable grazing pressure.

It was demonstrated that denuded range could be artificially revegetated using local grasses. The site for revegetation was prepared by the community by using ox-ploughs to disturb the bare ground with shallow plough lines to provide micro-catchments.

Methods of reseeding degraded range were demonstrated and the capacity for the community to carry out these activities was built.

Capacity building for technology uptake of dryland resource improvement was done by empowering the agro-pastoralist with the knowledge required, thus enhancing faster technology adoption. Capacity building involved training community-identified members—agro-pastoral development agents (APDAs)—who were later used to spread the technologies over a wider population. The community also learned seed management of such rehabilitated ranges.

Indigenous grass-growing has now become a household practice in this area. This natural resource management technology, if widely adopted, would go a long way to ensuring sustainable rangeland utilization through the provision of forage and grass materials for household use.

## **Prospects**

There are several challenges faced in the adoption of the Dryland Resource Management Technologies. An integrated system must consider the main drawbacks, in particular: policy conflicts, (ii) poor understanding of the relationship between the hierarchy of human needs, (iii) national policies and donor priorities, (iv) relationship between demographic dynamics, productive capacities and economic size of land, (v) human-wildlife conflicts, (vi) weak research-extension-farmer linkages and (vii) poor marketing and credit facilities.

**Keywords :** Dryland Resource Management, Anti erosive measures, Technology Adoption, Kenya's arid and semi-arid lands, Ownership by the recipients, Capacity building